

Use of Leading Edge Waves to Increase Lift/Drag Ratio, Phase I

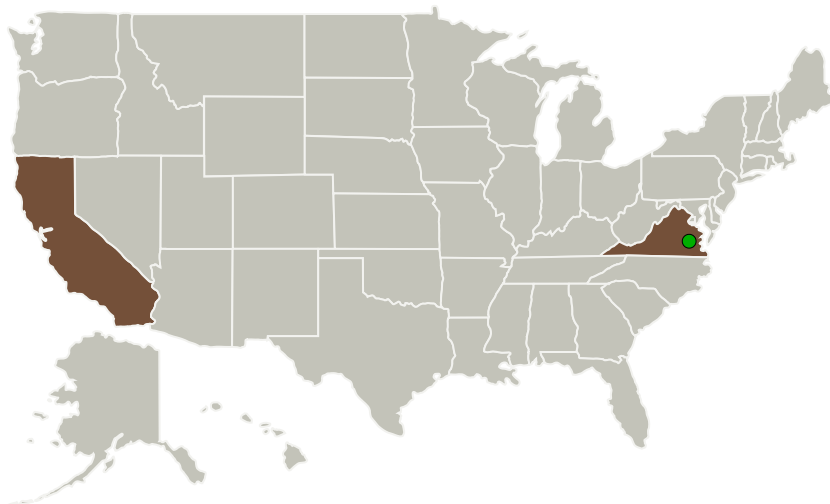
Completed Technology Project (2010 - 2010)




Project Introduction

One of the goals of NASA's Fundamental Aeronautics "Subsonic Fixed Wing" project is to reduce fuel burn by 25% 5% by 2018. This corresponds approximately to an increase in Lift/Drag ratio of the same magnitude. While the improvement in design tools funded by NASA will undoubtedly help attain this goal the innovation proposed here is an addition to this effort. In other words, any improvements in performance due to the innovation should be added to any improvements due to the use of new design tools. The innovation proposed here is a "leading edge wave" in which the leading edge of a wing is described by a high frequency, low amplitude wave, rather than the more conventional straight line. Previous results have indicated that such a leading edge can lead to improvements in Lift/Drag ratio of 15%.

Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|-------------------------|-------------|-----------------------|
| AYCN LLC | Lead Organization | Industry | Los Altos, California |
|  Langley Research Center(LaRC) | Supporting Organization | NASA Center | Hampton, Virginia |



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Primary U.S. Work Locations

California

Virginia

Project Transitions

 **January 2010:** Project Start

 **July 2010:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139516>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

AYCN LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

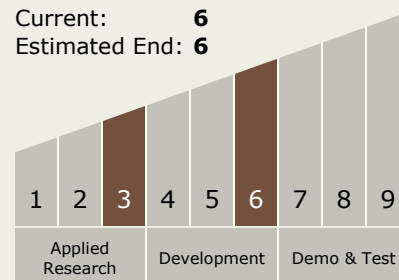
Carlos Torrez

Principal Investigator:

David Nixon

Technology Maturity (TRL)

Start: **3**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.3 Aeroelasticity

Target Destinations

The Sun, Earth, The Moon,
Mars, Others Inside the Solar
System, Outside the Solar
System